Course Name & Course code: Environmental Science (BBSUCT1004)

Question Bank for Unit 3 and Unit 4

Unit 3: Battery Technology & Sustainable Energy Sources

1. Discuss briefly the consequences of Bhopal gas tragedy.
2. Differentiate between renewable and non-renewable natural resources.
3. What is solar energy? Enumerate the application of solar energy in modern days.
4. What is geothermal energy? Discuss its merits and demerits.
5. How will you get energy from biological degradable materials?
6. Hydrogen can be considered as a future energy fuel. Explain.
7. What is nuclear energy? Discuss its potential and utilization in India.
8. Explain the use of solar energy for the purpose of:
   a. Solar water heating
   b. Solar cells
   c. Solar cooker
9. Discuss the use of bio-energy as a non-conventional renewable source of energy. Also discuss its scope and utilization in Indian context.
10. Discuss 'hydrogen as an alternate future source of energy'.
11. What is non – renewable energy resources?
12. What is Solar Energy? Discuss its merit and limitation.
13. What are renewable resources?
14. What is biomass energy?
15. Explain the significance of biomass energy.
16. What are the alternative energy resources? Discuss any two of them. Differentiate between renewable & non-renewable natural resources.
17. What is Tidal Energy? Discuss its merit and limitation.
18. What is Hydroelectric Energy? Discuss its merit and limitation.
19. What is biogas? Discuss the fixed dome type biogas plant with its merit and demerits.
20. What is Wind Energy? Discuss its merit and limitation.
21. Differentiate between Cell and Battery.
22. Differentiate between Primary battery and Secondary battery.
23. Define the term Battery. Classify battery based on their applications.
24. What is primary cell? Discuss the construction of Lechlanche cell with its cell reactions and diagram.
25. Discuss the construction of mercury button cell with its cell reactions and diagram.
26. Discuss the construction of silver button cell with its cell reactions and diagram.
27. What is secondary cell? Discuss the construction of Lead storage cell with its cell reactions and diagram.
28. Explain Lead storage cell with suitable diagram. Write down the reactions involved during discharging and charging of Lead storage cell.
29. Discuss the construction of Nickel-cadmium cell with its cell reactions and diagram.
30. Differentiate between Reversible and irreversible cells.

Unit 4: Green Chemistry

1. Define green chemistry with suitable example.
2. Explain the concept of atom economy.
3. Illustrate the concept of zero waste technology.
4. Explain in your own words about the advantages of green product to human health and environment.
5. Illustrate the advantage of atom economy over percentage yield.
6. What is green technology?
7. What are the basic principles of green chemistry?
8. Which principle of green chemistry refers to ‘Atom economy’? Give suitable examples.
9. Benzene is oxidized to maleic anhydride. Calculate the ‘Atom Economy’ for this reaction.
10. It is said ‘Prevention is better than cure’ Justify this statement in context to ‘Green Chemistry’.
11. Write Short notes on:
    a. Zero waste technology
    b. Green reagents
    c. Atom Economy
    d. Green Starting Materials
12. Illustrate with examples ‘Green Reactions’.
13. How do the green starting materials help to improve the environmental conditions?
14. How is the new synthesis of Ibuprofen better than the conventional synthesis?
15. Analyze the following principles: (i) Design of safer chemicals and (ii) Use of catalysts and non-stoichiometric reagents.
16. Apply the concept of atom economy with respect to the following reactions: Rearrangement reaction, Oxidation reaction. Calculate the atom economy for these reactions by using suitable examples.
17. Apply the concept of atom economy with respect to the following reactions: Addition reactions, substitution reactions. Calculate the atom economy for these reactions by using suitable examples.
18. Explain in details the importance of 12 basic principles of Green Chemistry.
19. Interpret in detail the significance of selection of renewable feedstocks as starting material.
20. List and explain the twelve basic principles of Green Chemistry.
21. Explain how 'Green Starting Materials' and 'Green Reaction' serve as important tools of Green Chemistry.
22. Discuss the role of atom economy and calculate the atom economy values in following type of reactions. (i)Addition Reactions (ii)Substitution Reactions(iii)Rearrangement Reactions.
23. Benzene is oxidized to maleic anhydride. Describe and calculate the 'Atom economy' for this reaction.
24. Describe the various tools of Green Chemistry.
25. Express your views on 'Avoid of chemical derivatives.
26. Explain the significance of 'selection of renewable feedstocks' as starting materials.